

# Frequency Allocation Plan for the Radio Amateur Civil Emergency Service (RACES)

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OFFICE OF CIVIL AND DEFENSE MOBILIZATION

Information in this appendix was previously issued in Technical Bulletin 4-2, "Radio Frequency Allocation Plan for Disaster Communications Service and Radio Amateur Civil Emergency Service," dated October 1953, which is hereby rescinded.

(For FCC rules for RACES and an FCC OCDM checklist of RACES plan requirements, see Advisory Bulletin No. 122, "Federal Communications Commission Rules for Amateur Civil Emergency Services (RACES)," revised Oct. 1, 1959.)

Information concerning organization and operation of a Disaster Communications Service is to be issued separately. Civil defense units may continue to operate on frequencies under the applicable Federal Communications Commission Rules, Part 20.

MAY 1961

# Frequency Allocation Plan for the Radio Amateur Civil Emergency Service (RACES)

## INTRODUCTION

This appendix outlines a frequency allocation plan for stations in the Radio Amateur Civil Emergency Service (RACES). The plan is designed to: (1) Make efficient use of the skilled radio amateurs throughout the Nation; (2) minimize communications interference; and (3) provide maximum use of those amateur frequencies earmarked for civil defense communications (RACES) during an alert, natural disaster, or national emergency, as directed by civil defense authority. In peacetime, stations in RACES share these frequencies with the regular amateur service.

The radio frequency allocation plan includes those RACES frequencies added July 1, 1959, as a result of the Federal Communications Commission's final action on Docket 12719. Radio channels in the 7, 14, and 21 mc amateur bands are in addition to the allocation expansion in the 3.5-4.0 mc amateur band. For efficient use of the allocated frequency spectrum during a national emergency, it is essential that frequency coordination be achieved by each local RACES group.

Many existing State and area RACES plans will require revision to comply with this allocation plan and to gain clear-channel operation for each State on both the 3.5 and 7.0 mc bands. Conversion costs will be eligible for Federal Contributions funds if applicants comply with recommendations outlined in this appendix and have on file an approved OCDM-FCC RACES plan.

## GENERAL PRINCIPLES OF ALLOCATION

Longer range frequencies have been allocated to the States for civil defense operations. Distances involved in statewide networks which tie State control centers to remote area control centers require frequencies in both the 3.5 and 7.0 mc bands, and on occasion may require the use of the 14 or 21 mc bands. Local communities, metropolitan areas, and counties or parishes can achieve efficient communications by using frequencies in the 28, 50, 144, and

220 mc bands, without encountering long-range interference inherent in 3.5 and 7.0 mc band operation.

Continuous wave (CW) frequencies in the 3.5 and 7.0 mc ranges are assigned to States to effect a clear channel for each State on both bands. In addition to these specific assignments, other channels may be assigned by OCDM on a geographical minimum-interference basis, upon application, and a showing of need.

Certain radiotelegraph channels have been reserved for State-to-OCDM regional headquarters emergency operation. All States in each OCDM Region have been assigned a frequency for interstate-intraregional liaison.

## MODIFICATION REQUIREMENTS

Presently approved RACES plans are valid until Jan. 1, 1963. Operations may continue on assigned frequencies until that date unless a plan is modified. If a plan is modified, it must conform to the particulars set forth in this appendix. RACES plans that do not conform with this appendix must be modified by Jan. 1, 1963, or they will be cancelled. Double sideband amplitude modulation operation in the frequency segment 3990-4000 kc will be permitted until Jan. 1, 1963.

Upon issuance of this appendix, all RACES applications received by OCDM for new or modified plans, using radiotelephone and radiotelegraph frequencies made available in FCC Docket No. 12719, must comply with this appendix.

## ADDITIONAL FREQUENCIES

Additional frequencies were allocated for RACES operation by the FCC in Docket No. 12719, effective July 1, 1959. They are:

Frequency (kc)	
3510—3516	7245—7255
3516—3550	14047—14053
3984—3990	14220—14230
7079—7103	21047—21053
7103—7125	

Frequencies for use by RACES stations outside continental United States will be assigned in accordance with sections 12.111 and 12.231 of the FCC rules and regulations.

To implement the frequency channelization described in this appendix, transmitters are required to maintain a frequency tolerance that will not deviate more than 25 percent of the separation between assigned channels. Crystal-controlled operation is recommended insofar as possible.

## AUTHORIZED EMISSIONS

Authorized emissions and their definitions follow:

- 0.1A1—Continuous-wave telegraphy.
- 1.1F1—Frequency-shift telegraphy.
- 6A2—Telegraphy amplitude modulated at audio frequency.
- 6F2—Telegraphy frequency modulated at audio frequency.
- 6A3—Commercial-quality, amplitude-modulated telephony.
- 6F3—Narrow-band frequency or phase-modulated telephony.
- 40F3—Wide-band frequency or phase-modulated telephony.
- 6A4—Amplitude-modulated facsimile.
- 3A3a—Single sideband reduced carrier telephony.

Where wide-band frequency or phase-modulated telephony (40F3) is authorized, narrow-band frequency or phase-modulated telephony (6F3) also may be employed. Similarly, where commercial-quality amplitude-modulated telephony (6A3) is authorized, single- or double-sideband amplitude telephony (3A3a), with or without carrier or with reduced carrier, also may be employed.

State radio officers and RACES personnel are jointly responsible for the efficacy of this frequency plan to effect maximum capability during a national emergency.

## FREQUENCY ALLOCATIONS

### 1800-2000 kc

Frequencies in this band are subject to the LORAN system of radio-navigation priority and to the geographical, frequency, emission, and power limitations contained in Section 12.111 of the FCC rules governing amateur radio service. Cancellation of RACES authorizations for any or all frequencies in this band may be necessary or desirable owing to

the priority of the LORAN system. However, in coordination with adjacent areas, selection of specific frequencies should be based on table 1.

Table 1.—*Channelization for 1800-2000 kc*

Frequency (kc)	
Telephone (6A3)	Telegraph (0.1A1, 1.1F1)
1805.5	1801.0
1812.5	1802.0
1819.5	1823.0
	1824.0
	1976.0
1980.5	1977.0
1987.5	1998.0
1994.5	1999.0

### 3500-3550 kc

Assignments shown in table 2 provide each State with a primary frequency in this band for radio-telegraph use. Secondary frequencies are assignable where need is shown.

Table 2.—*Channelization for radiotelegraph (3500-3550 kc)<sup>1</sup>*

(Emission—0.1A1, 1.1F1)

Frequency (kc)	State	Frequency (kc)	State
3506.5	Alaska,	3528.5	Michigan
	Rhode Island	3529.5	Louisiana, Nevada
3507.5	Hawaii, Iowa	3530.5	Maine
3508.5	Mississippi	3531.5	Missouri
3509.5	North Carolina,	3532.5	South Carolina
	Washington	3533.5	Montana
3510.5	New York	3534.5	New Jersey
3511.5	North Dakota	3535.5	Arkansas
3512.5	Illinois	3536.5	Georgia
3513.5	Arizona, Virginia	3537.5	Wyoming
3514.5	New Hampshire	3538.5	Pennsylvania
3515.5	South Dakota	3539.5	Oklahoma
3516.5	Tennessee	3540.5	Alabama
3517.5	Idaho	3541.5	Colorado
3518.5	Vermont	3542.5	Delaware,
3519.5	Minnesota		District of Columbia
3520.5	Ohio	3543.5	Texas
3521.5	Oregon	3544.5	Indiana
3522.5	Massachusetts	3545.5	California
3523.5	Nebraska	3546.5	Maryland
3524.5	Kentucky	3547.5	Wisconsin
3525.5	Utah	3548.5	Florida
3526.5	Connecticut	3549.5	New Mexico,
3527.5	Kansas		West Virginia

<sup>1</sup> Frequencies in the 3516-3550 kc band are limited to the first 30 days of an actual civil defense emergency, unless otherwise ordered by the FCC.

RACES frequencies for State-to-OCDM regional communications are shown in table 3.

Table 3.—*Channelization for radiotelegraph  
State-to-OCDM Region  
(3500-3550 kc)*

(Emission—0.1A1, 1.1F1)

Fre- quency (kc)	OCDM Region	States
3501.3	1	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont
3505.5	2	Delaware, Kentucky, Maryland, Ohio, Pennsylvania, Virginia, West Virginia, District of Columbia
3502.0	3	Alabama, Florida, Georgia, Miss- issippi, North Carolina, South Carolina, Tennessee
3503.4	4	Illinois, Indiana, Michigan, Minnesota, Wisconsin
3504.8	5	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
3500.7	6	Colorado, Iowa, Kansas, Missouri, Nebraska, North Dakota, South Dakota, Wyoming
3502.7	7	Arizona, California, Hawaii, Nevada, Utah
3504.1	8	Alaska, Idaho, Montana, Oregon, Washington

### 3984-4000 kc

This band is normally used for both AM and SSB radiotelephone operation, although authorized emis- sions also include 0.1A1, 1.1F1, 6A3, and 6F3. Many State RACES networks now use conventional AM telephone equipment which may continue in active network operation pending conversion to SSB operation.

All systems or networks converted to SSB operation must operate on one of the frequencies shown in table 4.

Table 4.—*Channelization for radiotelephone  
(3984-4000 kc)*

(Emission—(3A3a) SSB (lower sideband)  
0.1A1, 1.1F1)

Frequency (kc)	
3987.5	3996.5
3990.5	3999.5
3993.5	

### 7101-7125 kc

Frequency allocation table 5 provides each State with a radiotelegraph channel in the 7.0 mc portion of the band.

Table 5.—*Channelization for radiotelegraph  
(7101-7125 kc)<sup>1</sup>*

(Emission—0.1A1, 1.1F1)

Fre- quency (kc)	State	Fre- quency (kc)	State
7101.0	Iowa, Rhode Island	7113.0	Missouri
7101.5	Mississippi	7113.5	South Carolina
7102.0	Washington	7114.0	Montana
7102.5	New York	7114.5	New Jersey
7103.0	North Dakota	7115.0	Arkansas
7103.5	West Virginia	7115.5	Georgia
7104.0	Arizona	7116.0	Wyoming
7104.5	New Hampshire	7116.5	Pennsylvania
7105.0	South Dakota	7117.0	Oklahoma
7105.5	Tennessee	7117.5	Alabama
7106.0	Idaho	7118.0	Colorado
7106.5	Vermont	7118.5	Delaware
7107.0	Minnesota	7119.0	Texas
7107.5	Ohio	7119.5	Indiana
7108.0	Oregon	7120.0	California
7108.5	Massachusetts	7120.5	Maryland
7109.0	Nebraska	7121.0	Wisconsin
7109.5	Kentucky	7121.5	Florida
7110.0	Utah	7122.0	New Mexico
7110.5	Connecticut	7122.5	Virginia
7111.0	Kansas	7123.0	Louisiana
7111.5	Michigan	7123.5	Illinois
7112.0	Nevada	*7124.0	State-to-State Hq.
7112.5	Maine	7124.5	North Carolina

<sup>1</sup>Frequencies in the 7103-7125 kc band are limited to the first 30 days of an actual civil defense emergency, unless otherwise ordered by the FCC.

\*7124.0 kc is assigned as a State-to-State headquarters calling fre- quency for contact on assigned radiotelegraph channels.

### 7097.5-7100.5 kc

Table 6 provides RACES radiotelegraph frequen- cies for State-to-OCDM regional communication, intraregion, and interstate communications for mu- tual aid and mobile support in the 7.0 mc portion of the band.

Table 6.—*Channelization for radiotelegraph  
(7097.5-7100.5 kc)*

(Emission—0.1A1, 1.1F1)

Fre- quency (kc)	OCDM Region	States
7097.5	1	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont
7100.5	2	Delaware, Kentucky, Maryland, Ohio, Pennsylvania, Virginia, West Virginia
7098.0	3	Alabama, Florida, Georgia, Mis- sissippi, North Carolina, South Carolina, Tennessee
7099.0	4	Illinois, Indiana, Michigan, Minnesota, Wisconsin
7100.0	5	Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Table 6.—*Channelization for radiotelegraph*  
(7097.5-7100.5 kc)—Continued  
(Emission—0.1A1, 1.1F1)—Continued

Frequency (kc)	OCDM Region	States
7098.5	6	Colorado, Iowa, Kansas, Missouri, Nebraska, North Dakota, South Dakota, Wyoming
7099.5	7	Arizona, California, Nevada, Utah
7097.5	8	Idaho, Montana, Oregon, Washington

#### 7245-7255 kc

Channels in this band (table 7) are intended for statewide operation only. Due to increased activity and interference, nighttime use will be limited. Since this band will provide only three SSB voice channels, prior frequency allocation to States has not been made. Each application for a specific channel assignment must be accompanied by a detailed justification. OCDM will then coordinate and determine channel assignments to minimize mutual interference.

Table 7.—*Channelization for radiotelephone*  
(7245-7255 kc)<sup>1</sup>

(Emission—(3A3a) SSB (lower sideband) 0.1A1, 1.1F1)

Frequency (kc)
7248.5
7251.5
7254.5

<sup>1</sup>Frequencies in the 7245-7247 and 7253-7255 kc bands are limited to the first 30 days of an actual civil defense emergency, unless otherwise ordered by the FCC.

#### 14047-14053 kc

Channels in this band (table 8) are intended primarily for State-to-OCDM Region use. A few of the larger States may require channels for State-to-area or State-to-State use. Each application for a specific channel assignment must be submitted by the State, through OCDM regional offices, accompanied by a detailed justification. OCDM then will coordinate and determine channel assignments to minimize mutual interference.

Table 8.—*Channelization for radiotelegraph*  
(14047-14053 kc)

(Emission—0.1A1, 1.1F1)

Frequency (kc)
14047.5
14048.0
14048.5
14049.0
14049.5
<sup>1</sup> 14050.0

<sup>1</sup>14050.0 is available only as a State-to-State headquarters radiotelegraph calling frequency to arrange for contact on other assigned State channels.

#### 14220-14230 kc

Channels in this band (table 9) are intended for State assignments only. As this band provides only three SSB voice channels, prior frequency allocation to individual States has not been made. Each application for a specific channel assignment must be submitted by the State, through OCDM regional offices, accompanied by a detailed justification. OCDM will then coordinate and determine channel assignments to minimize mutual interference.

Table 9.—*Channelization for radiotelephone*  
(14220-14230 kc)<sup>1</sup>

(Emission—(3A3a) (upper sideband) 0.1A1, 1.1F1)

Frequency (kc)
14220.5
14223.5
14226.5

<sup>1</sup>Frequencies in the 14220-14222 and 14228-14230 kc bands are limited to the first 30 days of actual civil defense emergency, unless otherwise ordered by the FCC.

#### 21047-21053 kc

Channels in this band (table 10) are intended for State assignments only. As this band provides a small number of channels, allocation to individual States has not been made. Each application for a specific channel must be submitted by the State through OCDM regional offices, accompanied by a detailed justification. OCDM then will coordinate and determine channel assignments to minimize mutual interference.

Table 10.—*Channelization for radiotelegraph*  
(21047-21053 kc)

(Emission—0.1A1, 1.1F1)

Frequency (kc)
21047.5
21048.0
21048.5
21049.0
21049.5
<sup>1</sup> 21050.0
21050.5
21051.0
21051.5
21052.0
21052.5

<sup>1</sup>21050.0 kc is intended for use only as a State headquarters-to-State headquarters calling frequency to arrange for contact on other assigned radiotelegraph State channels.

#### VHF bands

VHF bands are defined in this appendix as the 10-, 6-, 2-, and 1¼-meter bands. The FCC has

designated only a few channels for civil defense operations in the RACES segments of the amateur bands. Therefore, it is essential that the States have a plan to achieve internal coordination of these allotted frequencies and assign them according to need. The bands have been divided into channels with the frequency separations shown in table 11.

Table 11.—*Channelization for VHF bands*

<i>Band (meters)</i>	<i>Frequency (mc)</i>	<i>Channel separation (kc)</i>
10	28	10
6	50	20
2	144	30
1¼	220	40

## THE QUADRANT SYSTEM

The quadrant system is used in making local frequency assignments. If this plan is applied with good judgment, a minimum of adjacent-area interference problems will result. Careful consideration must be given to the receiving characteristics of the particular equipment used.

### Principles of the Quadrant System

Each State is divided into quadrants of approximately equal size. The division lines can follow political boundaries—or in some cases, natural boundaries. Where necessary, and if the State areas are of sufficient size, these large quadrants may be subdivided into smaller quadrant systems. This subdivision may take place several times, until the distance across any quadrant shall not be less than the normal ground wave distance of the frequency considered. To determine quadrant sizes, the following ground wave distances are recommended:

- 10 meters—each quadrant system 60 miles, each quadrant 30 miles.
- 6 meters—each quadrant system 30 miles, each quadrant 30 miles.
- 2 meters—each quadrant system 30 miles, each quadrant 15 miles.
- 1¼ meters—each quadrant system 30 miles, each quadrant 15 miles.

Each quadrant system shall be designated as follows (operates in clockwise direction):

- A—Northwest      B—Northeast
- D—Southwest      C—Southeast

All the channels in each band are then inserted in clockwise rotation into these quadrants, starting with quadrant A. (See tables 12, 13, 14, and 15.) No break should occur in rotation of these assignments. When the low-band channels are exhausted, the rotation continues immediately with the high-band group rather than restarting in quadrant A.

The channels for basic statewide use are then crossed off the quadrant together with any other channels that would—because of their assignment for State use in adjacent States—cause an interference problem near adjacent State borders. The remaining channels in each quadrant may be reassigned.

### Recording of Channel Assignments

Local frequency assignments are the responsibility of each State. However, the State also is responsible for maintaining a complete record of all VHF assignments to avoid interference.

States requiring 10-, 6-, 2-, and 1¼-meter channels are responsible for advising local communities which channels they may use and which VHF channels are reserved for State operations.

## OPERATION OF THE QUADRANT SYSTEM

Chart 1 shows the method of operation of the quadrant system. For example, Indiana is divided into approximately equal quadrants: The northwestern section of the State is designated as quadrant A; northeastern section as quadrant B; southeastern section as quadrant C; and the southwestern section as quadrant D. Quadrant subdivisions, in general, incorporating political entities, should be selected to meet individual State and local needs.

### CHANNELIZATION

#### 10-Meter-Band Frequencies

(28.55-28.75 and 29.45-29.65 mc)

Frequencies available for assignment in quadrants A, B, C, and D are selected from table 12.

*Quadrant A.*—10-meter-band frequencies assignable are any of the 10 frequencies from 28.56 mc to 29.63 mc.

*Quadrant B.*—10-meter-band frequencies assignable are any of the 10 frequencies from 28.57 mc to 29.64 mc.

*Quadrant C.*—10-meter-band frequencies assignable are any of the 9 frequencies from 28.58 mc to 29.61 mc.

NOTE: QUADRANT SUBDIVISION LINES MAY BE SELECTED TO FOLLOW POLITICAL ENTITIES SUCH AS COUNTY, TOWNSHIP, OR CITY JURISDICTIONAL AREAS.

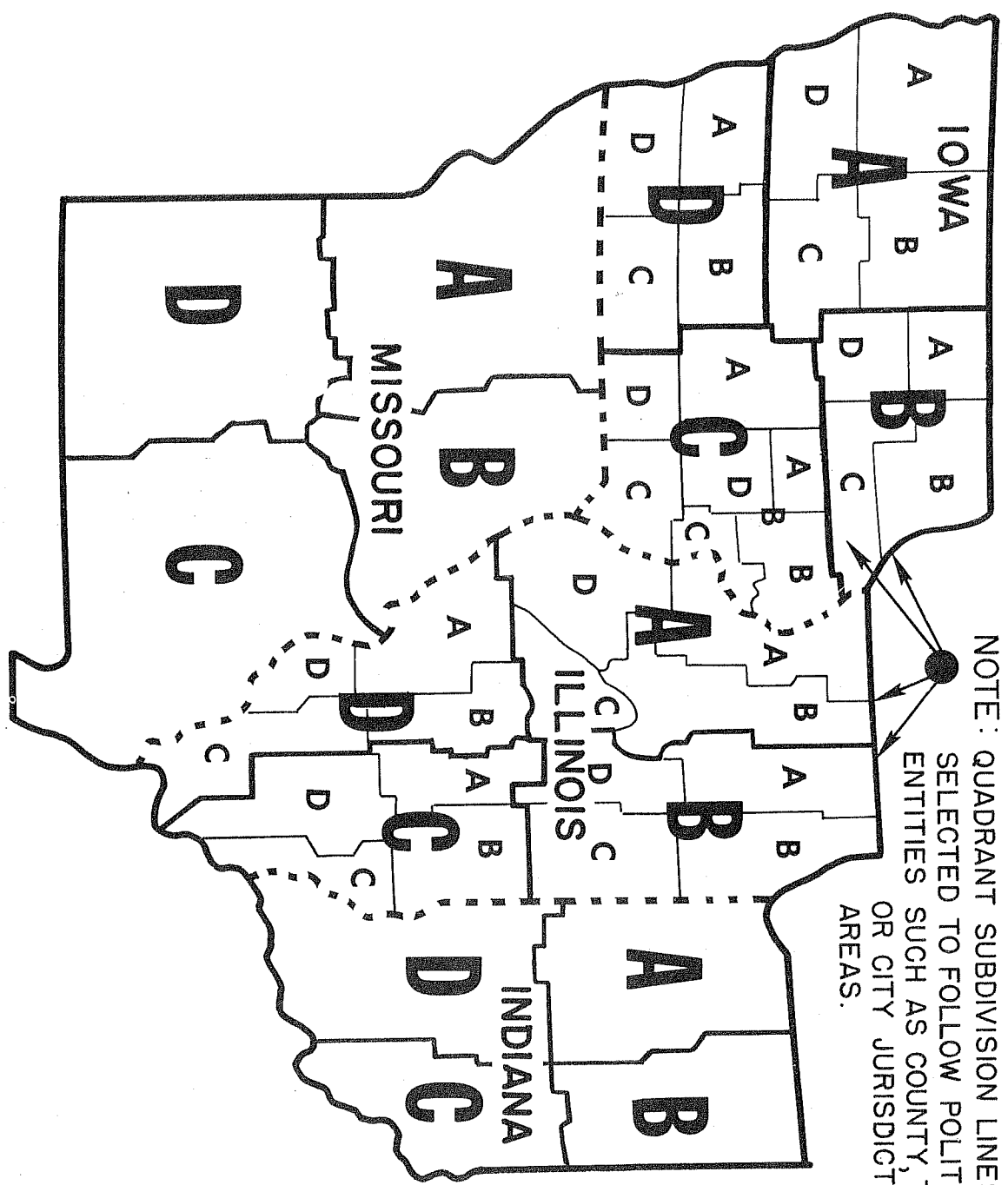


CHART No.1 SUGGESTED METHOD OF QUADRANT SUBDIVISION



*Quadrant D.*—10-meter-band frequencies assignable are any of the 8 frequencies from 28.59 mc to 29.62 mc.

#### 6-Meter-Band Frequencies (50.35-53.75 mc)

Assignments in the 6-meter-band frequencies are made in the same manner as in the 10-meter band, but the 6-meter-band frequencies are selected from table 13, which shows the assignments for the respective quadrants.

#### 2-Meter-Band Frequencies (145.17-147.33 mc)

Assignments in this band are made in the same manner as in the 10-meter band, but the 2-meter-band frequencies are selected from table 14, which shows the 2-meter-band assignments for the respective quadrants.

#### 1¼-Meter-Band Frequencies (220-225 mc)

Assignments in this band are made in the same manner as in the 10-meter band, but the 1¼-meter band frequencies are selected from table 15, which shows the 1¼-meter band assignments for the respective quadrants.

### SUBDIVISION OF THE QUADRANT SYSTEM

A State requiring additional communications channels may subdivide each of the quadrants into additional quadrants as shown in chart 1 in the example for Illinois. By this subdivision, the original quadrant A, located in the northwestern section of the State, is subdivided into quadrants, and the frequencies shown in tables 12, 13, 14, and 15 can be reassigned in *three* additional areas of the State. Therefore, quadrant A frequencies in the 10-, 6-, 2-, and 1¼-meter bands may be used in *four* separate areas of the State. This subdivision also permits using frequencies, available for assignment, in quadrants B, C, and D in *three* additional areas of the State. OCDM recommends that quadrants be spaced a minimum of 30 miles for satisfactory operation in the 10-meter band. Therefore, the subdivision shown for Illinois should be well within the groundwave limitations of the 10-, 6-, 2-, and 1¼-meter bands. (See "Principles of the Quadrant System," p. 5.)

A densely populated State or area requiring additional frequencies for communications may again

subdivide any of these quadrants into additional quadrants, as shown in chart 1; for example, in the southeastern section of Iowa. The B quadrant of the subdivided C quadrant may be again subdivided into quadrants. For example, if this subdivision is employed in all the 16 secondary quadrants in Iowa, all the frequencies in the A quadrants shown in tables 12, 13, 14, and 15 are assignable in 64 individual areas of the State. Also, the frequencies assignable in the B, C, and D quadrants can be reassigned in 64 locations.

States having a low population density will require relatively few frequencies and therefore may not require subdivision into smaller quadrants.

Quadrant subdivisions may be made as many times as practicable, based upon the recommended groundwave distances outlined in "Principles of the Quadrant System," on page 5. The State radio officer must use good judgment when assigning frequencies in any particular quadrant subdivision to prevent communication interference with adjacent States.

Table 12.—Allocation of 10-meter frequencies<sup>1</sup>  
RACES channels for use by States, counties,  
and local governments

(Emissions: 28.55—28.75 mc—0.1A1, 3A3a, 6A3, 6F3, 6A4  
29.45—29.65 mc—0.1A1, 1.1F1, 3A3a, 6A3, 6A4,  
40F3)

Quadrant A		Quadrant B	
Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles
1	28.56	1	28.57
2	28.60	2	28.61
3	28.64	3	28.65
4	28.68	4	28.69
5	28.72	5	28.73
6	29.47	6	29.48
7	29.51	7	29.52
8	29.55	8	29.56
9	29.59	9	29.60
10	29.63	10	29.64
Quadrant D		Quadrant C	
1	28.59	1	28.58
2	28.63	2	28.62
3	28.67	3	28.66
4	28.71	4	28.70
5	29.50	5	28.74
6	29.54	6	29.49
7	29.58	7	29.53
8	29.62	8	29.57
		9	29.61

<sup>1</sup>Operation of the quadrant system is in clockwise direction. (See Chart 1.)

Table 13.—Allocation of 6-meter frequencies<sup>1</sup>  
RACES channels for use by States, counties,  
and local governments

(Emissions: 50.35 mc—50.75 mc—0.1A1, 6A2, 6F2, 6F3, 6A4  
50.35 mc—53.75 mc—0.1A1, 1.1F1, 6A2, 6F2,  
6A3, 6A4, 40F3  
53.30 mc—40F3)<sup>2</sup>

Quadrant A		Quadrant B	
Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles
1	50.36	1	50.38
2	50.44	2	50.46
3	50.52	3	50.54
4	50.60	4	50.62
5	50.68	5	50.70
6	53.36	6	53.38
7	53.44	7	53.46
8	53.52	8	53.54
9	53.60	9	53.62
10	53.68	10	53.70

Quadrant D		Quadrant C	
Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles
1	50.42	1	50.40
2	50.50	2	50.48
3	50.58	3	50.56
4	50.66	4	50.64
5	50.74	5	50.72
6	53.42	6	53.40
7	53.50	7	53.48
8	53.58	8	53.56
9	53.66	9	53.64
10	53.74	10	53.72

<sup>1</sup>Operation of the quadrant system is in clockwise direction. (See Chart 1.)

<sup>2</sup>The 53.30 mc frequency is available in emergency areas for initial contact with military units and for communication with military stations.

Table 14.—Allocation of 2-meter frequencies<sup>1</sup>  
RACES channels for use by States, counties,  
and local governments

(Emissions: 145.17—145.71 mc—0.1A1, 1.1F1, 6A2, 6F2,  
6A3, 6A4, 40F3  
146.79—147.33 mc—0.1A1, 1.1F1, 6A2, 6F2,  
6A3, 6A4, 40F3)

Quadrant A		Quadrant B	
Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles
1	145.20	1	145.23
2	145.32	2	145.35
3	145.44	3	145.47
4	145.56	4	145.59
5	145.68	5	146.82
6	145.91	6	146.94
7	147.03	7	147.06
8	147.15	8	147.18
9	147.27	9	147.30

Quadrant D		Quadrant C	
Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles
1	145.29	1	145.26
2	145.41	2	145.38
3	145.53	3	145.50
4	145.65	4	145.62
5	146.88	5	146.85
6	147.00	6	146.97
7	147.12	7	147.09
8	147.24	8	147.21

<sup>1</sup>Operation of the quadrant system is in clockwise direction. (See Chart 1.)

Table 15. — *Allocation of 1¼-meter frequencies*  
*RACES channels for use by States, counties, and local governments*  
(Emissions: 220.00 mc—225.00 mc—0.1A1, 1.1F1, 6A2, 6F2, 6A3, 6A4, 40F3)

Quadrant A		Quadrant B		Quadrant C		Quadrant D	
Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles	Channel designation	Frequency in megacycles
1	220.020	1	220.060	1	220.100	1	220.140
2	220.180	2	220.220	2	220.260	2	220.300
3	220.340	3	220.380	3	220.420	3	220.460
4	220.500	4	220.540	4	220.580	4	220.620
5	220.660	5	220.700	5	220.740	5	220.780
6	220.820	6	220.860	6	220.900	6	220.940
7	220.980	7	221.020	7	221.060	7	221.100
8	221.140	8	221.180	8	221.220	8	221.260
9	221.300	9	221.340	9	221.380	9	221.420
10	221.460	10	221.500	10	221.540	10	221.580
11	221.620	11	221.660	11	221.700	11	221.740
12	221.780	12	221.820	12	221.860	12	221.900
13	221.940	13	221.980	13	222.020	13	222.060
14	222.100	14	222.140	14	222.180	14	222.220
15	222.260	15	222.300	15	222.340	15	222.380
16	222.420	16	222.460	16	222.500	16	222.540
17	222.580	17	222.620	17	222.660	17	222.700
18	222.740	18	222.780	18	222.820	18	222.860
19	222.900	19	222.940	19	222.980	19	223.020
20	223.060	20	223.100	20	223.140	20	223.180
21	223.220	21	223.260	21	223.300	21	223.340
22	223.380	22	223.420	22	223.460	22	223.500
23	223.540	23	223.580	23	223.620	23	223.660
24	223.700	24	223.740	24	223.780	24	223.820
25	223.860	25	223.900	25	223.940	25	223.980
26	224.020	26	224.060	26	224.100	26	224.140
27	224.080	27	224.220	27	224.260	27	224.300
28	224.340	28	224.380	28	224.420	28	224.460
29	224.500	29	224.540	29	224.580	29	224.620
30	224.660	30	224.700	30	224.740	30	224.780
31	224.820	31	224.860	31	224.900	31	224.940
32	224.980						